



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,016	04/20/2001	Yukihiro Kiuchi	NE+99P237A	9360

466 7590 02/24/2004

YOUNG & THOMPSON
745 SOUTH 23RD STREET 2ND FLOOR
ARLINGTON, VA 22202

EXAMINER


SELLERS, ROBERT E

ART UNIT	PAPER NUMBER
----------	--------------

1712

DATE MAILED: 02/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/830,016	Applicant(s) KIUCHI ET AL.	
	Examiner Robert Sellers	Art Unit 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2003 and 29 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-38, 44 and 45 is/are pending in the application.
- 4a) Of the above claim(s) 26-33, 38, 44 and 45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Newly submitted claims 44 and 45 are directed to an invention that is independent or distinct from the invention originally claimed for the same reasons as regarding claim 38 because the claims are directed to the semiconductor device as is claim 38.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 44 and 45 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

This application contains claims 38, 44 and 45 drawn to an invention nonelected with traverse in the election filed July 29, 2003. A complete reply to the final rejection must include cancellation of the nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

In the amendment filed July 29, 2003, the species of epoxy resin comprising a combination of biphenylaralkyl epoxy resin of formula (2) and tetraphenylethane epoxy resin of formula (3) depicted on page 25 of the specification and shown in Examples 18-20 on page 47, Table 5 has been elected. Claims 26-29 requires at least one tetraphenylethane epoxy resin. Claims 30-33 define a mixture of biphenyl epoxy resins. Claims 26-33 are withdrawn as being directed to non-elected species of epoxy resin.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 34-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "type" used to characterize the tetraphenylethane epoxy resin in claims 34 and 37 does not concisely denote the epoxy resin since such a term encompasses modifications and derivatives not contemplated.

The arguments filed July 29, 2003 have been considered but are unpersuasive. The term "type" broadens the scope of the tetraphenylethane epoxy resin to include modified and further derivatives such as urethane-modified epoxy resins or the epoxy resins reacted with a monocarboxylic acid which are not corroborated by the specification or considered to be useful within the claimed limitations requiring the capability of forming a foamed layer.

The specification on page 23, lines 19-21 substantiates the claimed tetraphenylethane epoxy resin including three epoxy groups as well as the four epoxy groups represented by formula (e) on page 25.

Due to the presentation of new claims 26-37 in the amendment filed

May 22, 2003, the following new grounds of rejections are advanced. The arguments filed with the amendment do not pertain to these rejections since they are based on the original filed claims which have been cancelled.

The text of section 103(a) of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takami et al. in view of Shimizu et al.

The references have been described in the Non-final rejection mailed January 22, 2003.

Takami et al. states that "any kinds of epoxy compound can be employed as long as it contains in its molecule two or more epoxy groups (col. 4, lines 19-21)" and "[t]hese epoxy resins may be employed singly or as a mixture consisting of two or more kinds (col. 4, lines 36-37)." The biphenyl epoxy resin of general formula (1) (col. 4, lines 39-55) is distinguished and exemplified (col. 22, lines 3-4, Epoxy resin (II-A)) as "improving the reflow crack resistance of the resin composition." Epoxidized tetra(hydroxyphenyl)alkane is also suitable according to col. 4, lines 28-29).

It is well within the purview to employ the epoxidized tetra(hydroxyphenyl)alkane of Takami et al. as the epoxy resin based on patentees' recognition that "any kinds of epoxy compound can be employed."

Claims 34-37 denote a blend of biphenyl and tetraphenylethane epoxy resins. Shimizu et al. (col. 2, lines 50-63) indicates that a biphenyl epoxy resin provides "good moldability and solder heat resistance."

It would have been obvious to combine the biphenyl epoxy resin with the tetraphenylethane epoxy resin, both of which are disclosed in Takami et al. who espouses mixtures of epoxy resins, in order to improve the reflow crack resistance, moldability and solder heat resistance accruing from the biphenyl epoxy resin.

Takami et al. espouses a phenol resin with biphenyl moieties (col. 5, line 37 to col. 6, line 14, general formula (4)).

Takami et al. (col. 7, lines 22-24, 85 wt% or more) and Shimizu et al. (col. 4, lines 20-24, 50-99.9 wt%) set forth amounts of silica within the claimed range of inorganic filler of greater than 60 up to 95 wt%.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tokunaga et al. is also explained in the Non-final rejection. A blend of biphenyl epoxy resins (col. 7, lines 61-62, epoxy resin II.) is shown in Examples 14 and 15 of Table 3 (cols. 10-12) of Tokunaga et al.

The amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

(703) 308-2399 (Fax no. (703) 872-9306)
Monday to Friday from 9:30 to 6:00 EST



Robert Sellers
Primary Examiner
Art Unit 1712